

Enrole

1754

| TRANSMITTAL LETTER | | | Case No. 10322/33 |
|---|--------------------------------|------------------------------|------------------------|
| Serial No. 10/044,831 | Filing Date January 9, 2002 | Examiner Colleen P. Cooke | Group Art Unit 1754 |
| Inventor(s) Patrick J. Hentges et al. | | | |
| Title of Invention Nitrogen Dielectric Oxide Films | | | |

TO THE COMMISSIONER FOR PATENTS

Transmitted herewith is Response to Objection to Information Disclosure Statement, copy of return postcard from 5/16/03 filing, copy of previously filed Information Disclosure Statement and Form PTO 1449, copies of previously submitted references A1-A16, and new return postcard.

- ☐ Small entity status of this application under 37 CFR § 1.27 has been established by verified statement previously submitted.
- ☐ Applicant claims small entity status. See 37 CFR 1.27.
- ☐ Petition for a _____ month extension of time.
- ☒ No additional fee is required.
- ☐ The fee has been calculated as shown below:

| | | | | | Small Entity | | Other Than Small Entity | |
|---|----------------------------------|-------|---------------------------------|---------------|-----------------|-----------|-------------------------|-----------|
| | Claims Remaining After Amendment | | Highest No. Previously Paid For | Present Extra | Rate | Add'l Fee | Rate | Add'l Fee |
| Total | | Minus | | | x \$9 = | | x \$18 = | |
| Indep. | | Minus | | | x 43 = | | x \$86 = | |
| First Presentation of Multiple Dep. Claim | | | | | + \$145 = | | + \$290 = | |
| | | | | | Total add'l fee | \$ | Total add'l fee | \$ |

- ☐ Please charge Deposit Account No. 23-1925 (BRINKS HOFER GILSON & LIONE) in the amount of \$____. A duplicate copy of this sheet is enclosed.
- ☐ A check in the amount of \$____ to cover the filing fee is enclosed.
- ☒ The Commissioner is hereby authorized to charge payment of any additional filing fees required under 37 CFR § 1.16 and any patent application processing fees under 37 CFR § 1.17 associated with this communication or credit any overpayment to Deposit Account No. 23-1925. A duplicate copy of this sheet is enclosed.
- ☒ I hereby petition under 37 CFR § 1.136(a) for any extension of time required to ensure that this paper is timely filed. Please charge any associated fees which have not otherwise been paid to Deposit Account No. 23-1925. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

Jonathan P. Taylor

Jonathan P. Taylor, Ph.D.
Registration No. 48,338
Agent for Applicant
Customer No. 00757 - Brinks Hofer Gilson Lione

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, ILLINOIS 60610
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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, with sufficient postage, in an envelope addressed to:
Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on April 13, 2004.

Date: 4/13/04 Signature: *Jonathan P. Taylor*



CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope, with sufficient postage, addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on

May 16, 2003

Date of Deposit

Jonathan P. Taylor, Ph.D., Reg. No. 48,338

Name of Applicant, Assignee or
Registered Representative


Signature

5/16/03

Date of Signature

Our Case No.: 10322/33

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

| | |
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| <p>In re Application of:</p> <p>Patrick J. Hentges et al.</p> <p>Serial No.: 10/044,831</p> <p>Filing Date: January 9, 2002</p> <p>For: ULTRATHIN DIELECTRIC OXIDE FILMS</p> | <p>Examiner: TBA</p> <p>Group Art Unit No.: 1751</p> |
|--|--|

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In compliance with the duty of disclosure under 37 C.F.R. § 1.56, it is respectfully requested that this Information Disclosure Statement be entered and the documents listed below and on the attached Form PTO-1449 be considered by the Examiner and made of record. Copies of the listed documents required by 37 C.F.R. § 1.98(a)(2) are enclosed for the convenience of the Examiner.



The references now cited are the following:

FOREIGN PATENT

| DOCUMENT NUMBER <small>Number-Kind Code (if known)</small> | DATE | COUNTRY |
|--|--------|---------|
| JP 09-2410008 A2 | 9/1997 | Japan |

OTHER ART REFERENCES

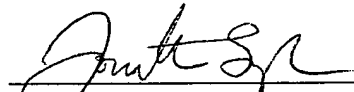
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|--|
| Bradley, D.C., et al., "Zirconium Alkoxides", <i>J. Chem.Soc.</i> , 1951, p. 280-285. |
| Bradley, D.C., et al., "Structural Chemistry of the Alkoxides. Part IV. Normal Alkoxides Silicon, Titanium, and Zirconium", <i>J. Chem.Soc.</i> , 1953, pp. 2025-2030. |
| Bradley, D.C., et al., "The Pyrolysis of Metal Alkoxides. Part 2 – Kinetic Studies On Zirconium Tetra-Tert.-Amyloxide", <i>Trans. Faraday Soc.</i> , 1959, Vol. 55, pp. 2117-2123 |
| Bradley, D.C et al., "Pyrolysis of Metal Alkoxides. I. Thermal Stability of Some Zirconium Alkoxides", <i>J. appl. Chem.</i> , 1959, Vol. 9, pp. 435-439. |
| Covington, M., et al., "Observation of Surface-Induced Broken Time-Reversal Symmetry in YBa ₂ Cu ₃ O ₇ Tunnel Junctions", <i>Physical Review Letters</i> , 1997, Vol. 79, No. 2, pp. 277-280. |
| Day, Victor W., et al., "Isolation and Structural Characterization of tra-n-propyl Zircor Hydrocarbon Solution and the Solid State", <i>Inorg. Chem.</i> , 2001, Vol. 40, No. 23, p. 5738-5746. |
| Hentges, P.J., et al., "Fabrication of Tunnel Barriers on YBCO Thin Films by Chemical Surface Modification", Abstract from March 2000 meeting of the American Physical Society, printed from the Internet at: < http://www.aps.org/meet/MAROO/baps/abs/S2110001.html >, dated March 2000, 1 page. |
| Hentges, P.J., et al., "Observation of Sharp, New Density of States Features in Solution-Fabricated YBCO Planar Tunnel Junctions", Abstract from March 2001 meeting of the American Physical Society, printed from the Internet at: < http://www.aps.org/meet/MARO1/baps/abs/S5270003.html >, dated March 2001, 1 page. |
| Ichinose, Izumi, et al., "Stepwise Adsorption of Metal Alkoxides on Hydrolyzed Surfaces: A Surface Sol-Gel Process", <i>Chemistry Letters</i> , 1996, p. 831-832. |
| Ichinose, Izumi, et al., "A Surface Sol-Gel Process to TiO ₂ and Other Metal Oxide Films Molecular Precision", <i>Chem. Mater</i> , 1997, Vol. 9, No. 6, pp. 1296-1298. |
| Pafford, Mary Margaret, "Synthesis and Characterization of Alkyi Tetra-, Tri-, and Triskaidecazirconates", Doctoral Thesis submitted in the Graduate College of the University of Illinois at Urbana-Champaign, 2000, pp. i – xiii and 1-167. |
| Tada, Hiroaki, "Layer-by-Layer Construction of SiO _x Film on Oxide Semiconductors", <i>Langmuir</i> , 1995, Vol. 11, No. 9, pp. 3281-3284. |
| Turevskaya, et al., "The alkoxides of zirconium and hafnium: direct electrochemical synthesis and mass-spectral study. Do "M(OR) ₄ ", where M=Zr, Hf, Sn, really exist?", <i>Russian Chemical Bulletin</i> , 1995, Vol. 44, No. 4, pp. 734-742. |
| Turova, N. Ya, et al., "Physicochemical approach to the studies of metal alkoxides", <i>Polyhedron</i> , 1998, Vol. 17, No. 5-6, pp. 899-915. |
| Zechmann, Cecilia A., et al., "Synthesis of Zirconium Pinacolate and Mechanism of Its Thermal Transformation to ZrO ₂ : Impact of a Vicinal Diol Ligand", <i>Chem. Mater.</i> , 1998, Vol. 10, No. 9, pp. 2348-2357. |

This Information Disclosure Statement is being filed prior to the receipt of the first Official Action reflecting an examination on the merits and hence is believed to be timely filed in accordance with 37 C.F.R. § 1.97(b). No fees are believed to be due in connection with filing of this Information Disclosure Statement. However, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be deemed necessary for any reason relating to these materials, the Commissioner is hereby authorized to deduct said fees from Brinks Hofer Gilson & Lione Deposit Account No. 23-1925.

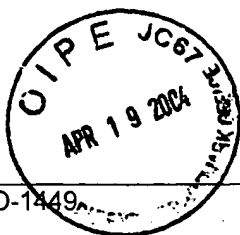
Applicants respectfully request that the listed documents be made of record in the present case.

Respectfully submitted,

5/16/03


Jonathan P. Taylor, Ph.D.
Registration No. 48,338
Agent for Applicants

BRINKS HOFER GILSON & LIONE
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Chicago, IL 60610
Tel. (312) 321-4200
Fax (312) 321-4299



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|---|--------------------------------|---|
| FORM PTO-1449 | SERIAL NO. 10/044,831 | CASE NO. 10322/33 |
| LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT | FILING DATE January 9, 2002 | GROUP ART UNIT 1751 |
| (use several sheets if necessary) | | APPLICANT(S): Patrick J. Hentges et al. |

REFERENCE DESIGNATION U.S. PATENT DOCUMENTS

| EXAMINER INITIAL | DOCUMENT NUMBER <small>Number-Kind Code (if known)</small> | DATE | NAME | CLASS/ SUBCLASS | FILING DATE |
|---------------------|--|------|------|--------------------|----------------|
| | A | | | | |

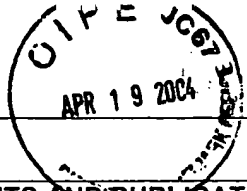
FOREIGN PATENT DOCUMENTS

| EXAMINER INITIAL | DOCUMENT NUMBER <small>Number-Kind Code (if known)</small> | DATE | COUNTRY | CLASS/ SUBCLASS | TRANSLATION YES OR NO |
|---------------------|--|------------------|---------|--------------------|--------------------------|
| | A1 | JP 09-2410008 A2 | 9/1997 | Japan | Abstract |

| EXAMINER INITIAL | OTHER ART – NON PATENT LITERATURE DOCUMENTS <small>(Include name of author, title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date page(s), volume-issue number(s), publisher, city and/or country where published.</small> | | | | |
|---------------------|--|--|--|--|--|
| | A2 | Bradley, D.C., et al., "Zirconium Alkoxides", <i>J. Chem.Soc.</i> , 1951, p. 280-285. | | | |
| | A3 | Bradley, D.C., et al., "Structural Chemistry of the Alkoxides. Part IV. Normal Alkoxides Silicon, Titanium, and Zirconium", <i>J. Chem.Soc.</i> , 1953, pp. 2025-2030. | | | |
| | A4 | Bradley, D.C., et al., "The Pyrolysis of Metal Alkoxides. Part 2 – Kinetic Studies On Zirconium Tetra-Tert.-Amyloxide", <i>Trans. Faraday Soc.</i> , 1959, Vol. 55, pp. 2117-2123 | | | |
| | A5 | Bradley, D.C et al., "Pyrolysis of Metal Alkoxides. I. Thermal Stability of Some Zirconium Alkoxides", <i>J. appl. Chem.</i> , 1959, Vol. 9, pp. 435-439. | | | |
| | A6 | Covington, M., et al., "Observation of Surface-Induced Broken Time-Reversal Symmetry in YBa2Cu3O7 Tunnel Junctions", <i>Physical Review Letters</i> , 1997, Vol. 79, No. 2, pp. 277-280. | | | |
| | A7 | Day, Victor W., et al., "Isolation and Structural Characterization of tra-n-propyl Zircor Hydrocarbon Solution and the Solid State", <i>Inorg. Chem.</i> , 2001, Vol. 40, No. 23, p. 5738-5746. | | | |
| | A8 | Hentges, P.J., et al., "Fabrication of Tunnel Barriers on YBCO Thin Films by Chemical Surface Modification", Abstract from March 2000 meeting of the American Physical Society, printed from the Internet at: < http://www.aps.org/meet/MAR00/baps/abs/S2110001.html >, dated March 2000, 1 page. | | | |
| | A9 | Hentges, P.J., et al., "Observation of Sharp, New Density of States Features in Solution-Fabricated YBCO Planar Tunnel Junctions", Abstract from March 2001 meeting of the American Physical Society, printed from the Internet at: < http://www.aps.org/meet/MAR01/baps/abs/S5270003.html >, dated March 2001, 1 page. | | | |
| | A10 | Ichinose, Izumi, et al., "Stepwise Adsorption of Metal Alkoxides on Hydrolyzed Surfaces: A Surface Sol-Gel Process", <i>Chemistry Letters</i> , 1996, p. 831-832. | | | |
| | A11 | Ichinose, Izumi, et al., "A Surface Sol-Gel Process to TiO2 and Other Metal Oxide Films Molecular Precision", <i>Chem. Mater</i> , 1997, Vol. 9, No. 6, pp. 1296-1298. | | | |
| | A12 | Pafford, Mary Margaret, "Synthesis and Characterization of Alkyl Tetra-, Tri-, and Triskaidecazirconates", Doctoral Thesis submitted in the Graduate College of the University of Illinois at Urbana-Champaign, 2000, pp. i – xiii and 1-167. | | | |

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| EXAMINER | DATE CONSIDERED |
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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

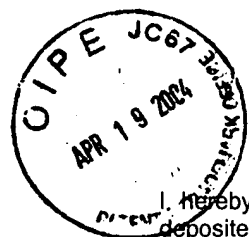


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|---|--------------------------------|---|
| FORM PTO-1449 | SERIAL NO. 10/044,831 | CASE NO. 10322/33 |
| LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT | FILING DATE January 9, 2002 | GROUP ART UNIT 1751 |
| (use several sheets if necessary) | | APPLICANT(S): Patrick J. Hentges et al. |

| EXAMINER INITIAL | OTHER ART – NON PATENT LITERATURE DOCUMENTS (Include name of author, title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date page(s), volume-issue number(s), publisher, city and/or country where published. | |
|---------------------|---|--|
| | A13 | Tada, Hiroaki, "Layer-by-Layer Construction of SiO _x Film on Oxide Semiconductors", <i>Langmuir</i> , 1995, Vol. 11, No. 9, pp. 3281-3284. |
| | A14 | Turevskaya, et al., "The alkoxides of zirconium and hafnium: direct electrochemical synthesis and mass-spectral study. Do "M(OR) ₄ ", where M=Zr, Hf, Sn, really exist?", <i>Russian Chemical Bulletin</i> , 1995, Vol. 44, No. 4, pp. 734-742. |
| | A15 | Turova, N. Ya, et al., "Physicochemical approach to the studies of metal alkoxides", <i>Polyhedron</i> , 1998, Vol. 17, No. 5-6, pp. 899-915. |
| | A16 | Zechmann, Cecilia A., et al., "Synthesis of Zirconium Pinacolate and Mechanism of Its Thermal Transformation to ZrO ₂ : Impact of a Vicinal Diol Ligand", <i>Chem. Mater.</i> , 1998, Vol. 10, No. 9, pp. 2348-2357. |

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| EXAMINER | DATE CONSIDERED |
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EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



I, hereby certify that this correspondence is being deposited with the United States Postal Service, with sufficient postage, as first class mail in an envelope addressed to:

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
on April 13, 2004

Date of Deposit

Jonathan P. Taylor, Ph.D., Reg. No. 48,338

Name of applicant, assignee or
Registered Representative

[Signature]
Signature

4/13/04
Date of Signature

Our Case No. 10322/33

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Patrick J. Hentges et al.

Serial No. 10/044,831

Filing Date: January 9, 2002

For ULTRATHIN DIELECTRIC OXIDE
FILMS

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) Examiner Colleen P. Cooke

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) Group Art Unit No. 1754
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RESPONSE TO OBJECTION TO INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In reply to the Office Action dated January 21, 2004, Applicants are submitting copies of references A1-A16, which were previously submitted as part of the Information Disclosure Statement filed May 16, 2003.

REMARKS

The present Office Action included an objection to the Information Disclosure Statement (IDS) filed May 16, 2003, under 37 CFR § 1.98(a)(2). The Office Action asserts that copies of the listed references were not included in this IDS.

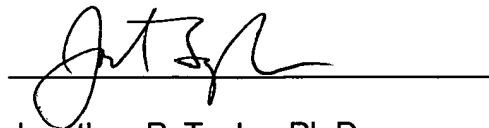
Applicants respectfully traverse this objection, as copies of the references were received by the Office of Initial Patent Examination (OIPE) at the U.S. Patent & Trademark Office. Attached to this Response is a copy of the return postcard submitted with the IDS of May 16, 2003. This postcard bears the stamp of the OIPE, dated May 20, 2003, acknowledging receipt of all the contents listed on the postcard. The postcard lists copies of references A1-A16 as part of the contents of this filing.

Also enclosed for the convenience of the Examiner are copies of the IDS and Form PTO-1449 that were previously filed on May 20, 2003. Applicants respectfully requested that the enclosed references be considered by the Examiner and made of record, and that the previously filed Information Disclosure Statement and Form PTO-1449 be entered.

Applicants note that this submission should not be considered a response to the Office Action mailed January 21, 2004. A complete response to the Office Action will be filed separately. Should the Examiner feel a discussion would expedite the prosecution of this application, the Examiner is kindly invited to contact the undersigned.

Respectfully submitted,

4/13/04



Jonathan P. Taylor, Ph.D.
Registration No. 48,338
Agent for Applicant

BRINKS HOFER GILSON & LIONE
P.O. BOX 10395
CHICAGO, ILLINOIS 60610
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Serial No.: 10/044,831 Filed: Jan. 9, 2002
Applicants: Patrick J. Hentges et al.
Case No.: 10322/33

Items mailed to: Commissioner for Patents, P.O. Box 1450,
Alexandria, VA. 22313-1450

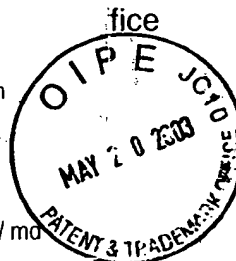
Please acknowledge receipt of the below-identified:
Transmittal Letter (in Duplicate); Information Disclosure Statement; Form
PTO-1449, copies of references A1-A16 and return post card.

BRINKS HOFER GILSON & LIONE

By: Jonathan P. Taylor, Ph.D., Reg. No. 48,338

Date of Mailing: May 16, 2003

By: JPT/ mo

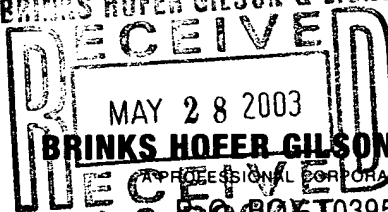


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Carlsbad Caverns National Park, NM

